

REMARKS

Claim 1 has been amended to reintroduce the original limitations of claim 1. It is believed that this addresses the claim objections raised by the Examiner. Additionally, claim 1 has been amended to further clarify that the leads form the only external contacts for the resulting integrated circuit package. This is quite different than the structure contemplated by Melton. Specifically, Melton contemplates the formation of internal metallic (solder) bumps 20, which are exposed on the surface of the package opposite the lead frame 22. It is these metallic bumps that provide the electrical contacts to external devices. Melton does not appear to contemplate using exposed portions of the lead frames as his external electrical contacts. It should be appreciated that the package structure recited in claim 1 of the present application is substantially easier to produce than the package described by Melton. Accordingly, it is respectfully submitted that claim 1, as presently presented is patentable over the art of record.

Claims 2 – 6 each depend either directly or indirectly from independent claim 1 and are therefore respectfully submitted to be patentable over the art of record for at least the reasons set forth above with respect to claim 1. Additionally, some of these dependent claims require additional elements that when considered in the context of the claimed arrangements further patentably distinguish the art of record. For example, claim 6 requires that the plastic casing be formed by molding the casing. As will be discussed in more detail below with respect to claim 7, it is respectfully submitted that Melton contemplates forming an encapsulating casing using a dispensing approach as opposed to a molding approach.


The present amendment also introduces new claim 7. Like claim 1, claim 7 requires that the leads form the only external contacts for the resulting integrated circuit package. Additionally, claim 7 requires the formation of a plastic cap using a molding process. In other respects, claim 7 is generally similar in scope to claim 1 as presented prior to this amendment. As pointed out above, Melton contemplates the formation of internal metallic (solder) bumps 20, which are exposed on the surface of the package opposite the lead frame 22 to provide the electrical contacts to external devices. Melton also contemplates dispensing an epoxy based precursor to form the casing (perform) 21. See, e.g., Col. 5, lines 45-63 of the Melton reference. Again, it should be appreciated that the package structure recited in claim 7 of the present application is substantially easier to produce than the package described by Melton. Accordingly, it is respectfully submitted that claim 7 is patentable over the art of record.

New claims 8 – 10 each depend either directly or indirectly from independent claim 1 and are therefore respectfully submitted to be patentable over the art of record for at least the reasons set forth above with respect to claim 1. Additionally, these dependent claims require additional

elements that when considered in the context of the claimed arrangements further patentably distinguish the art of record. These dependent claims highlight the differences in the intended usage of the present invention and the package design taught by Melton. Specifically, Melton contemplates a package arrangement wherein internal solder bumps exposed on a surface opposite the lead frame (and die) are used to mount the package to an external device (e.g., a printed circuit board). In contrast, in the arrangement recited in claims 7-10, the exposed lower surface of the package (which includes the exposed lead frame and/or the exposed die) is generally expected to be used to mount the package to external devices (e.g., a printed circuit board).

In view of the foregoing, it is respectfully submitted that all pending claims are patentable over the art of record and that this case is now in condition for allowance. Should the Examiner have any remaining concerns regarding the present application, he is encouraged to contact the undersigned at the telephone number set out below.

Respectfully submitted,
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